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Utahns Breathing Cleaner Air

"Utah's air is much cleaner now than it was a decade ago. While there is still work to be done, we have made great progress in protecting the public's health and the environment now and for future generations."

Rick Sprott, Director, Division of Air Quality

Utahns are seeing — and breathing — cleaner air. The past decade has experienced great progress in the quality of the air we breathe. Cooperation has been a key to Utah's healthier air. Regulators, industries, and citizens have cooperatively found solutions that balance the need for a strong economy and ac-

tive lifestyle with the need for clean air.

At the same time, the federal air quality standards we live by are getting more stringent. "Research offers more evidence that we need to be more protective," said Rick Sprott, director of the Division of Air Quality.

In the years to come, Utahns can expect to see cleaner cars, recreational vehicles, lawn and garden equipment, fuels, and electricity generation, which in the long run will benefit consumers with not only less pollution but also higher-quality products.

Cleaner air also means fewer violations of the health standards. However, no violations do not necessarily mean no health impacts. Certain groups — mainly our kids and grandparents — are often affected by moderate levels of pollution.

"Children and the elderly are the most vulnerable,"

Sprott said. "They depend on the rest of us for their well-being. The choices we make have an impact on the air they breathe."

In this issue of *Environmental Connection*, we explore some of the work being done to improve air quality for all Utahns now and in the future. You'll learn about the choices you can make to keep the air clean, how pollution is forecast and monitored, and what's being done to improve visibility in our treasured national parks.

Even though there's more work to be done, it still requires a cooperative effort and balanced approach. That much hasn't changed. While the impacts of growth make it more difficult to ensure clean air, it certainly won't be impossible. "We are committed to the cause and we don't plan on slowing down any time soon," Sprott said.

Environmental Connection to be published electronically

Your connection to Utah's environment just went paperless. Starting with our next issue, DEQ will publish and distribute *Environmental Connection* electronically. You will soon receive this informative newsletter in your e-mail inbox instead of your mail box. It means quicker, more timely information on the environmental issues you care about and expect from us.

To keep you on our distribution list, **all we need is your e-mail address**. It's easy. Just send us an e-mail at lvnron@utah.gov with your e-mail address and we'll take care of the rest. We'd love to keep you as a reader, so don't delay. Send us an e-mail today.

Choose Clean Air

Breathe Easier This Summer

Summer is the time when ozone — an invisible gas formed mostly from vehicle emissions in the presence of heat and sunlight — begins to form along the Wasatch Front. As the primary ingredient in summer smog, ozone is a major health and environmental problem. Not only can ozone cause breathing problems, it can also damage plants and trees and reduce visibility.

With your help, we can all breathe easier this summer by choosing to keep Utah's air clean. Undoubtedly, clean air enhances our quality of life by contributing to good health, a healthy economy, and the ability to enjoy the area's beautiful vistas.

It's the things we do individually that collectively make the biggest difference in keeping our skies blue. Because vehicles cause about 50 percent of our air pollution, the best thing you can do is to leave your vehicle parked for the day, especially on high ozone days. If you can't do that, make sure you're driving smarter and taking other steps to help "spare the air." The goal is to earn 10 points per day. Choose from the following:

DRIVE LESS

Earn 10 points by:

Leaving your vehicle parked all day.
Instead:

- Carpool
- Take a bus or ride TRAX
- Walk
- Ride a bike
- Telecommute

It's the things we do individually that collectively make the biggest difference in keeping our skies blue.

Earn 10, 7, or 5 points by:

Driving a carpool to and from work and leaving it parked the rest of the time.

- 10 points – 3 or more passengers
- 7 points – 2 passengers
- 5 points – 1 passenger

Earn 7 points if:

Your vehicle is only driven to catch:

- A carpool
- A bus
- TRAX

Earn 3 points for:

Walking to lunch
Packing a lunch and eating in
Postponing errands that can wait
Combining errands into one trip
Parking in a central place and walking
Conducting business by phone or e-mail

WHEN YOU DO DRIVE

Earn 3 points by:

Driving a car newer than 1996

Earn 2 points by:

Keeping your vehicle well tuned
Replacing your air filter on a regular basis
Keeping your tires properly inflated

Earn 1 point by:

Commuting during non-peak driving times
Choosing a route to avoid traffic delays
Avoiding drive-through lanes
Accelerating gradually
Obeying the speed limit
Using cruise control on the highway
Limiting your car's idling time
Waiting to gas up until evening hours

AT HOME

Earn 5 points by:

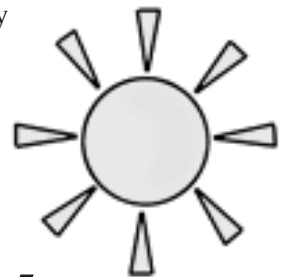
Using a push mower
Sweeping your leaves
Using electric lawn mowers, trimmers, etc.

Earn 3 points by:

Using water-based paints
Using a non-charcoal barbecue
Keeping your small motors — lawn mowers, leaf blowers, weed whackers — well tuned (use them only on low pollution days)

Earn 1 point by:

Buying less toxic or non-toxic products
Avoiding consumer spray products
Properly disposing of hazardous materials
Keeping all solvents and paints in airtight containers
Waiting to paint on low pollution days
Conserving energy
Maintaining your central air conditioner



www.cleanair.utah.gov

Here's what you'll find on Utah's premier "clean air" Web site:

- A daily plan of action, personalized to meet your needs
- Facts about ozone and driving
- Steps you can take to help spare the air
- Information on how ozone impacts your health

Partnership Aims To Reduce Haze in the West

Visibility is as much a quality of life issue as it is a health issue. No where is that more true than in the West's most celebrated national parks where haze sometimes obscures scenic vistas. Wanting to be part of the solution, Utah has taken an active role in the Western Regional Air Partnership (WRAP), an organization of western states, tribes, federal agencies, industries, environmental groups, and citizens focused on solving air quality problems by consensus.

"What makes WRAP extraordinary is that it is a partnership of diverse groups and interests that seeks participation on an equal basis," said Jan Miller, Division of Air Quality research consultant.

Under the guidance of the federal Clean Air Act, WRAP is working toward reducing the human-caused pollutants that form regional haze, mainly particulate matter and certain gases such as sulfur dioxide.

"WRAP's efforts so far have been on reducing emissions from industry and fires and through pollution prevention," said Rick Sprott, director of the Division of Air Quality. "Those anticipated reductions should also reduce haze in urban areas."

Like other states in the WRAP, Utah has participated in developing regulations to reduce regional haze and is currently writing its regional haze state implementation plan (SIP). The SIP details coordinated strategies Utah will use to reduce pollutants that contribute to regional haze. The Division of Air Quality expects to complete Utah's SIP by December 2003.

Improving visibility has been a national priority since 1977. According to EPA, without haze, visibility is about 140 miles in the West and 90 miles in the East. With haze, however, visibility in the West ranges from 33 to 90 miles, while in the East it's about 14 to 24 miles.

Since the mid-1980s, Utah has been a leader in addressing visibility, starting



Bryce National Park on a clear day.



Bryce National Park on a poor visibility day.

with Gov. Bangerter's task force to study the issue. Realizing that haze was a regional problem and, therefore, required a regional remedy, Utah became an active member of the Grand Canyon Visibility Transport Commission in the early '90s. In 1996, the Commission made over 70 recommendations for improving visibility in 16 national parks and wilderness areas on the Colorado Plateau. WRAP formed in 1997 to implement those recommendations.

All five of Utah's national parks — Arches, Capitol Reef, Canyonlands, Bryce Canyon, and Zions — are located on the Colorado Plateau and experience regional haze.

Utah's commitment to visibility protection continues under strong leadership from Utah Gov. Mike Leavitt, who co-

chairs the WRAP with Pueblo of Acoma Gov. Cyrus Chino.

Sources of Pollution That Contribute to Regional Haze

Industrial activities
Cars and trucks
Off-road vehicles and equipment
Fires

Major Pollutants

Sulfur dioxide
Nitrogen oxides
Dust
Soot
Organic compounds

The AQI and You

The AQI (Air Quality Index) is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health concerns you should be aware of. The AQI focuses on health effects that can happen within a few hours or days after breathing polluted air.

EPA (and DEQ) uses the AQI for five major air pollutants regulated by the Clean Air Act: ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect against harmful health effects.

You can think of the AQI as a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health danger. For example, an AQI value of 50 represents good air quality and little potential to affect public health, while an AQI value over 300 represents hazardous air quality.

An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. So, AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy — at first for certain sensitive groups of people, then for everyone as AQI values get higher.

To be sure, there is no “bright line” for pollution and health effects below which you are safe and above which you are affected. For most pollution, higher levels usually increase risk, so you should know your own medical situation and how to protect yourself. Consultation with a health care provider to address your specific needs is always advisable.

For more details on the AQI, please visit the “Clean Air Utah” Web site at www.cleanair.utah.gov. A brochure on the AQI is available online at www.epa.gov/airnow/aqibroch/.

Source: *Air Quality Index: A Guide to Air Quality and Your Health*

Sophisticated Network Monitors Air Quality

The Division of Air Quality operates a sophisticated network of 28 air monitoring and meteorological stations. Although located throughout the state, most of the air monitoring stations are concentrated along the Wasatch Front where pollution is typically higher.

The air monitors continuously measure the concentration of pollutants in the air, and then every hour relay that data to the Air Monitoring Center (AMC) where it is collected and analyzed. The data are used for a variety of purposes. For example, the AMC uses the monitoring data to prepare an Air Quality Index (AQI) Report twice a day — once in the morning and again in the afternoon. The AQI is a national system that allows pollutant levels to be compared to health standards and assigned a rating of “good,” “moderate,” “unhealthy,” or “hazardous.” Those reports are available on the AMC Web site at www.deq.utah.gov/EQAMC/api.htm. The AMC also publishes on the Web near real-time data coming in from the monitoring stations.

Additionally, DEQ uses the data to conduct air modeling (see Page 5) and write state implementation plans, which detail how pollutants will be controlled.



The Hawthorne air monitoring station in Salt Lake City is the most sophisticated in DEQ's statewide air monitoring network. It monitors ozone, particulate matter (PM_{2.5} and PM₁₀), nitrogen dioxide, nitrogen oxides, carbon monoxide, wind direction, wind speed, relative humidity, temperature, and solar radiation.



At the Hawthorne station, environmental scientist Thad Baldwin enters a tracking number for each filter into a computer after replacing sampled filters with new filters at a particulate matter (PM) monitor. Each filter is weighed as part of the calculation of pollution in the air.

Air Quality Modeling

Forecasts Impacts of Pollution

Whoever said planning for the future was just as important as living in the present was right. A perfect example is the Division of Air Quality's team of five air quality modelers who forecast impacts of future air pollution using present-day data.

"What we do is like forecasting the weather, except we forecast air pollution," said Brock LeBaron, manager of the division's technical analysis (air quality modeling) section.

Models are terrific planning tools because they help scientists and planners evaluate a variety of options for managing air quality. They are used most frequently during the permitting process to verify that a new source of pollution will not exceed the federal health standards, and for writing state implementation plans, which detail strategies for controlling pollutants in areas where the health standards have been violated.

Basically, models simulate the movement and chemistry of a pollutant once it is emitted into the air. They take into account such things as how

fast and how far it travels, what direction it goes, how its chemical composition changes as it travels, and how much of it falls out of the air or dissipates.

Therefore, before a model can even be run, it needs to know information about two things: the characteristics of the source of the pollutant and the weather. In some cases, other factors — dimensions of surrounding buildings, presence of other atmospheric chemicals, elevation, and ground cover — play key roles. What we know today helps the models determine what could happen in the future.

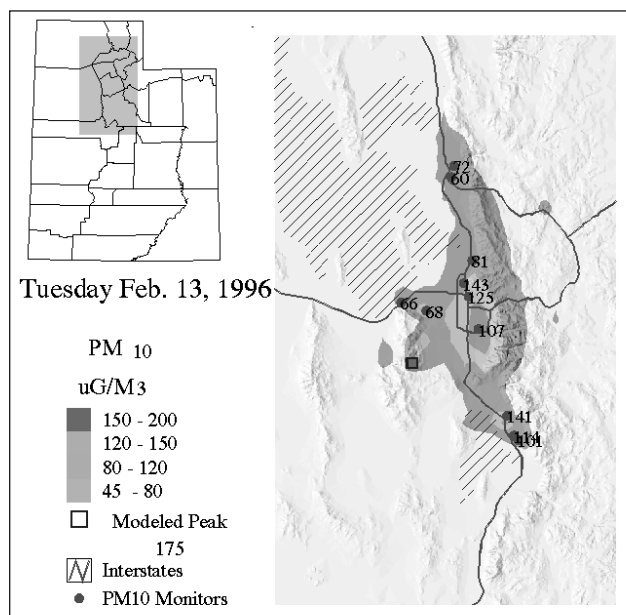
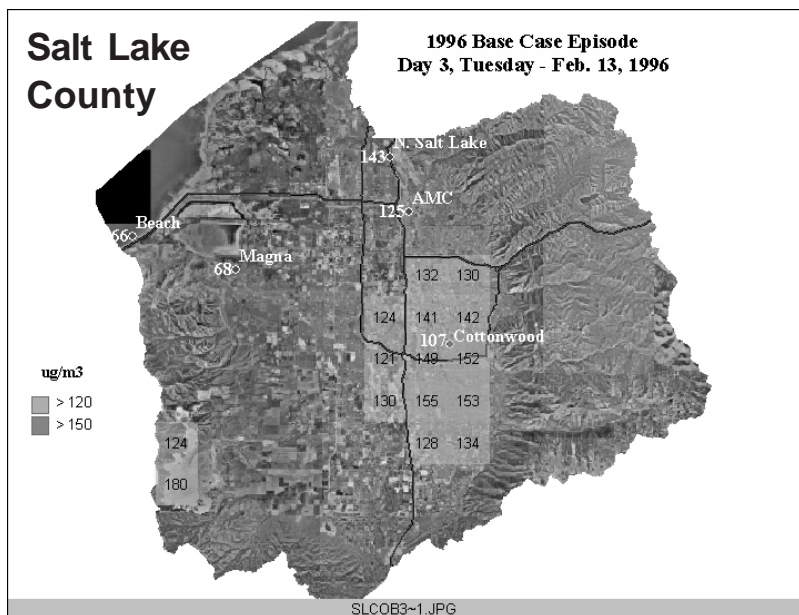
Once the models crunch the numbers, scientists end up with a forecast concentration at a certain point and certain time. Often the concentration varies from place to place. Sometimes the pollutant has changed chemically to something else, like in the case of ozone, which is formed from nitrogen oxides and volatile organic compounds in the presence of heat and sunshine.

In fact, a few years ago, air quality modelers ran a model that showed ozone hovering over Spanish Fork. The division located an air monitoring station there. Indeed, actual data showed that ozone was high. The model was right.

Utah has been very successful displaying air quality modeling results using GIS (geographic information systems) technology. GIS is essentially a mapping system. It allows technical information to be displayed pictorially on a map. Sometimes animation can be used to show, for example, the movement of a pollution plume.

"Everyone understands a map pretty well," LeBaron said. "GIS transforms a complicated, technical model into a simple, visual form that just about anyone can understand."

Air Quality Modeling
www.deq.utah.gov/EQAIR/PLANNING/Modeling.htm



Using GIS technology, modeling results can be displayed in a variety of ways. Modeled particulate matter (PM) data is overlain on an aerial photo of the Salt Lake Valley. The same modeled PM data is viewed another way over a larger area of northern Utah.

DSHW Implements Electronic Document Management System

In an effort to save time, costs, physical storage space, and the environment, the Division of Solid and Hazardous Waste has implemented an electronic document management system that is serving as a model for implementation across the department. Essentially, the system allows division staff to retrieve and transfer information electronically rather than by hard copy.

Implemented in phases during the past year and a half, the system is turning paper libraries into electronic libraries where documents are permanently stored and can be quickly retrieved. With file cabinet and storage space overflowing, the system allows large volumes of documents to be scanned and saved on dedicated servers or CDs, thus reducing the physical size of libraries as well as the time and cost it takes to find those documents and provide them to the public.

"The system makes all the information we have easily accessible to anyone and it costs them virtually nothing," said Dennis Downs, director of the Division of Solid and Hazardous Waste. "It's a cost savings to us as well and has changed the way we do business for the better."

The idea for an electronic library began in the division's chemical demilitarization program where requests for information were at a maximum. To meet the demand, the division developed the system using sophisticated yet simple and easy-to-use scanning and retrieval equipment and software. Once a document is in the electronic library, it can be searched and retrieved in a matter of seconds. The document can then be copied to a disk or e-mailed.



Division of Solid and Hazardous Waste receptionist Jeri Olsen scans and logs an incoming letter before routing it electronically to division staff. When scanned, the letter is automatically saved as a "pdf" file and assigned a tracking number.

"The division is following the Governor's lead to make information more accessible to the public 24/7/365. We are moving steadfastly toward our goal of having every document available electronically."

"It's a handy way for me to manage a lot of information at my fingertips," said Marty Gray, manager of the chemical demilitarization section.

In addition, the chemical demilitarization Web site now has a "public viewing area" that allows people to view documents out for public comment using a computer with Internet access, anytime, anyplace.

"The division is following the Governor's lead to make information more accessible to the public 24/7/365," Gray said. "We are moving steadfastly toward our goal of having every document available electronically."

Recently, the division began scanning incoming mail and routing it electronically among division staff. What took a couple of days to route now takes only seconds. And there's no paper trail to track.

The division is also moving toward electronic outgoing mail. Not long ago, it began offering and using e-mail as an option to send notices of hearings and meetings to those preferring to receive electronic correspondence from the division.

Next steps include expanding this system across the entire division for use in other programs and archiving historical documents.

News Briefs

DEQ Qualifies for Energy Star Designation

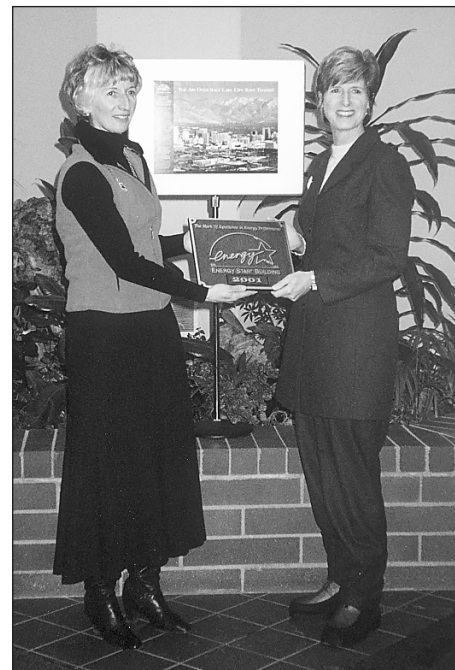
Two DEQ buildings have received EPA's Energy Star designation by performing in the top 25 percent of similar office buildings in the country in energy efficiency.

Working with the Utah Division of Facilities Construction and Management, DEQ, among other things, improved the way the heating and cooling system is controlled by upgrading to a more precise digital control system. DEQ also applied tinting to the windows, installed motion-detecting light switches to rooms sporadically used such as break rooms, and equipped snack and soda vending machines with energy misers to conserve power during non-business hours.

EPA started Energy Star in 1992 as a voluntary labeling program designed to identify and promote en-

ergy-efficient products in order to reduce carbon dioxide emissions. Energy Star has expanded to cover new homes, most of the buildings sector, residential heating and cooling equipment, major appliances, office equipment, lighting, and consumer electronics.

EPA estimates that, in 2000, Energy Star saved enough energy to power 10 million homes, reduced pollution equivalent to taking 10 million cars off the road, and saved more than \$5 billion in energy costs nationwide.



EPA Administrator Christie Whitman presents DEQ Executive Director Dianne Nielson with an Energy Star plaque to recognize DEQ for efficient use of energy.



DEQ Receives Information Technology Award

DEQ received an award from the state Chief Information Officer for the online-enabled Generator Site Access Permit and Renewal System developed in partnership with e-Utah. Presented by Gov. Mike Leavitt, the award recognizes outstanding online applications that improve the delivery of state government services.

"Our goal is to deliver e-government 24/7/365, and I believe we're getting there," Leavitt said at the award ceremony May 1. Making government more efficient is a priority of the Leavitt administration. Online services are the focal point.

Launched in fall 2001, the Generator Site Access Permit and Renewal System allows generators of low-level radioactive waste to use the Internet

"It's a different and smarter way of doing business, not only for us but also for our customers."

to apply and pay for a permit to dispose of their waste in Utah. DEQ can issue a permit online within 72 hours after receiving an application and payment.

"It's a different and smarter way of doing business, not only for us but also for our customers," said Edith Barker, generator site access program coordinator. "It saves time, it's interactive, and it provides a service quickly and efficiently."

Also at the award ceremony, the Center for Digital Government recog-

nized Leavitt as a "doer, dreamer, and driver of technology."

"Big things happen when the governor gets involved, and we think the only governor who gets it is Gov. Leavitt," Executive Director Cathilea Robinett said.

The Center for Digital Government also recognized Utah as the seventh most digital state in the nation.

Utah State Government
www.utah.gov/

Center for Digital Government
www.centerdigitalgov.com/

Leavitt, Whitman Discuss Asthma at Local School

Gov. Mike Leavitt and EPA Administrator Christie Whitman visited Lowell Elementary in Salt Lake City to discuss the effects of childhood asthma, which is often aggravated by poor air quality.

"Whether educating parents and children about how they can deal with asthma, or taking steps to more quickly clean our air, we are committed to protecting both the environment and public health," Whitman said.

To help children at the school better manage their asthma, Lowell Elementary implemented an asthma education program developed by the American Lung Association and supported by EPA. "Open Airways for Schools" teaches elementary-age children about the warning signs of asthma and what they can do to prevent an asthma attack. It is taught in approximately 150 Utah schools.

Air pollution contributes to asthma and other respiratory problems. According to the American Lung Association of Utah, more than 47,000 children in

Utah have asthma, making it one of the most common chronic illnesses in children and the leading cause of school absenteeism due to chronic illness.



Led by "Open Airways for Schools" instructor Rosemary Quatrale (center), Gov. Mike Leavitt and EPA Administrator Christie Whitman participate in a discussion about asthma with Lowell Elementary students.



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